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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,004	03/25/2004	Shoupu Chen	87976SLP	7773

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EXAMINER	
LAMPRECHT, JOEL	
ART UNIT	PAPER NUMBER
3737	

MAIL DATE	DELIVERY MODE
03/05/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,004	CHEN ET AL.	
	Examiner	Art Unit	
	JOEL M. LAMPRECHT	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,17-28,30 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17-28,30 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-15, 17-28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le (US 6,608,942) in view of Yokoi et al (US 2003/0023150 A1) and in further view of Zhang (US 6,181810 B1). Le discloses a digital image processing method comprising acquiring image data (Col 2 Lines 5-40), detecting discontinuities (Col 2 Line 12-55), preserving edges and other significant structure (Col 9 Line 29-62), and adjusting the exposure of the image with the discontinuity preserved (Col 12 Line 55 – Col 13 Line 60), including thresholding the images (Col 12 Line 35-60), forming

multiple masks from a thresholded image (Col 14 Line 10-65), and adjusting the properties (Col 15 Line 45 – Col 16 Line 42), including intensity variations, extremes, and contrast via those masks (Col 16 Line 49 – Col 17 Line 48). The development of those adjustments includes the creation of a smoothing band across a boundary (Col 17 Line 48 – Col 18 Line 65), and using gradients for color components to perform morphological filtering operations (Col 12 Line 17 – Col 13 Line 67). Additionally, Le uses masking alongside of filters to remove or preserve discontinuities from the images selectively (Col 14 Line 15-24), selectively intensify regions of the image based on threshold intensities on a scale (Col 16 Line 28 – Col 17 Line 25), and smoothing based on a selective width around a boundary line where intensity, and gradients thereof, provide a basis for smoothing (Col 8 Line 25 – Col 10 Line 20). Furthermore, the disclosure of Le provides a notification of a discontinuity to a remote site (Col 6 Line 40 – Col 7 Line 25), and an examination bundle processing system for transmitting data from the processed images to an external source or to a display means (Col 7 line 10-25).

Le does not disclose the acquisition of images from an in vivo camera system, or a wireless communication link between the image processing system and the in vivo camera system coupled to a Personal Digital Device or provide a specific step-by-step mask generation and modification in such simple terms. Attention is then paid to the secondary reference by Yokoi et al, which discloses a method for acquiring in vivo image data (0062), wirelessly transferring that data to a personal digital device and then to a computer for processing (0073).

Additionally, Le does not provide from the case where edge data is modified for smoothing but not for intensity as Le provides for both smoothing and normalization of the data in the detected edge. Attention is paid to the teaching reference to Zhang for the purpose of showing that in the same area of endeavor, multiple mask sets can be formulated and applied to filtering operations in order to preserve features such as intensity in some regions, while normalizing or otherwise modifying those features in another region of a medical image (Col 2 Line 30-Col 3 Line 25). Specifically when a substantial amount of speckle or discontinuous pixilation occurs (Col 3 Line 30-Col 4 Line 15). It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the teachings of Zhang with those of Le and Yokoi et al for the purpose of facilitating a multiple feature-based filters for regions of patient images.

Response to Arguments

Applicant's arguments filed 11/17/09 have been fully considered but they are not persuasive. Applicant has first argued that the art of record does not disclose correcting intensity of an image in particular areas while maintaining original brightness in other (crease) areas which are spatially unchanged in shape.

Examiner would like to first point out that the independent claims of the instant application comprise a conditional with regard to the "change in shape", that is, it is unclear if "that are spatially unchanged in shape" is implied to be an inherent property of the anatomical crease structures or if this is somehow created via the algorithm being used. The term shape also being ambiguous based on Applicant's arguments in that

the "shape" of a region in all of the above-cited references does not "change" on certain scales, but on a very small (pixel size) scale the shape will change of some pixels.

Furthermore, Applicant is arguing that Zhang changes the shape (even taking the most-specific definition of "shape") of the image. Applicant is not claiming that the image is reproduced with consistent shape (even on a pixel level). Applicant is claiming that brightness in one set of data (or one region of the image) is changed while it is not changed in another. Zhang selectively masks the image, and while the blood operator (mask) is being run, further gray-scale operations are not performed on the "tissue" section, thus maintaining the original brightness and shape during these moments. These sections are later averaged or normalized to produce time-course data, but during each individual frame, the brightness and shape of that region is maintained.

Regarding the argument that "skeleton image" is not disclosed within the references, Examiner points to the "white/black" or "0/1" image disclosures which Applicant has cited as a skeleton image as is commonly understood is an image where a white/black contrast image is set via a threshold (the regions where values are set to 0 and 1, produce an intermediate set of data which would be defined as a skeleton for the algorithm of Zhang, and similar intermediate image data is produced in Le).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOEL M. LAMPRECHT whose telephone number is (571)272-3250. The examiner can normally be reached on 8:30-5:00 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/

Supervisory Patent Examiner, Art Unit 3737

JML